The "Slipped Elbow" of Young Children

THOMAS C. MCVEAGH, M.D., *South San Francisco*

SUMMARY

"Slipped elbow" is essentially a distal subluxation of the head of the radius, caused by traction in the forearm, occurring in young children. It is easily reduced by the manipulation described. Although spontaneous reduction may occur during sleep, neglect may result in deformity of the elbow.

"SLIPPED ELBOW" is a fairly frequent traumatic condition which is apparently not generally recognized or diagnosed. It has been called by various names, including "Malgaigne's luxation," "dislocation of the radius by elongation," "the subluxation of young children," or "the painful pronation of young children." The features of this injury have been well described in the literature, running as far back as 1671 (Fournier), but the more recent orthopedic texts make little or no reference to it.

The patient is usually a child under three years of age, although cases have been described in patients as old as six years. Usually the cause of injury is that the child was either lifted by one wrist or, while walking with his hand in that of an adult, stumbled and was supported by the adult, pulling on the arm. Following such an incident the child usually cries out in pain and refuses to use the arm, which may hang motionless by the side or be held supported with the elbow slightly flexed across the front of the abdomen with the forearm in pronation. With the exception of supination, which is resisted by the child, all passive motions of the elbow joint affected appear to be painless. An interesting aspect of the injury is that almost invariably the person who takes the child to a physician thinks that the injury is in the shoulder rather than in the elbow.

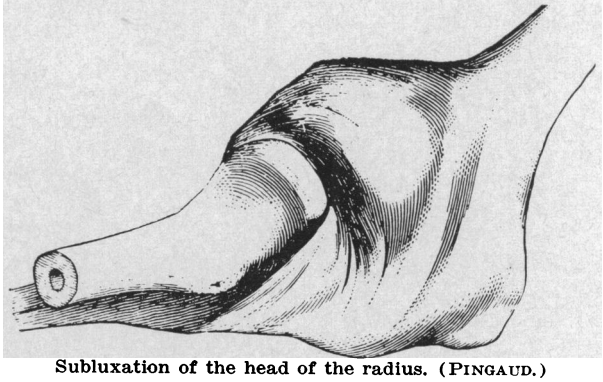
The mechanism of the injury appears to be that of subluxation of the head of the radius, which is drawn distally and anteriorly, the anterior edge of the radial head engaging below the lower border of the annular ligament. It is believed also that the posterior portion of the capsule is forced in by atmospheric pressure and becomes pinched between the head of the radius and the capitellum.

Because this condition occurs most frequently between the ages of one and three years and almost never at a greater age than six years, it appears reasonable to assume that the joint structures in children of the ages mentioned are sufficiently lax to permit of the subluxation and that this laxity diminishes as the joint tissues mature. It appears likely that in many instances such luxations reduce spontaneously in the relaxation of sleep.[2] The author is inclined to believe, however, that in some cases the luxation does not reduce without manipulation and that the end result may be a deformity of the elbow (Figure 4). Blodgett[1] reported two cases of "congenital luxation of the head of the radius" which appear to fall in this classification. In both cases the head of the radius was in anterior position and there was deformity. Blodgett analyzed and discussed reports in the literature of 51 similar cases. It appears evident, therefore, that the consequences of this ordinarily simple condition may occasionally be serious. The earlier literature on the mechanism of this injury was well summarized by Stimson[3] in a volume published in 1907, from which the accompanying anatomical figure is reproduced (Figure 1).

TREATMENT

Upon gentle supination of the forearm, usually assisted by flexion at the elbow, there is an audible click, following which the child is able to use the elbow without apparent discomfort. In order to reassure the parent, it is usual to put the affected arm in a sling for a few hours; in lieu of the sling, the child's sleeve may be pinned to its clothing for temporary support.

In the outpatient department of South San Francisco Hospital six cases of slipped elbow have been observed in the past four years. Two cases appear to be of particular interest, one because the condition was recurrent and the other because of a rather pronounced elbow deformity which apparently was the late result of an unreduced dislocation of this character.



Subluxation of the head of the radius. (PINGAUD.)

Figure 1.—Anatomy of "slipped elbow."

From the Department of Surgery, South San Francisco Hospital.

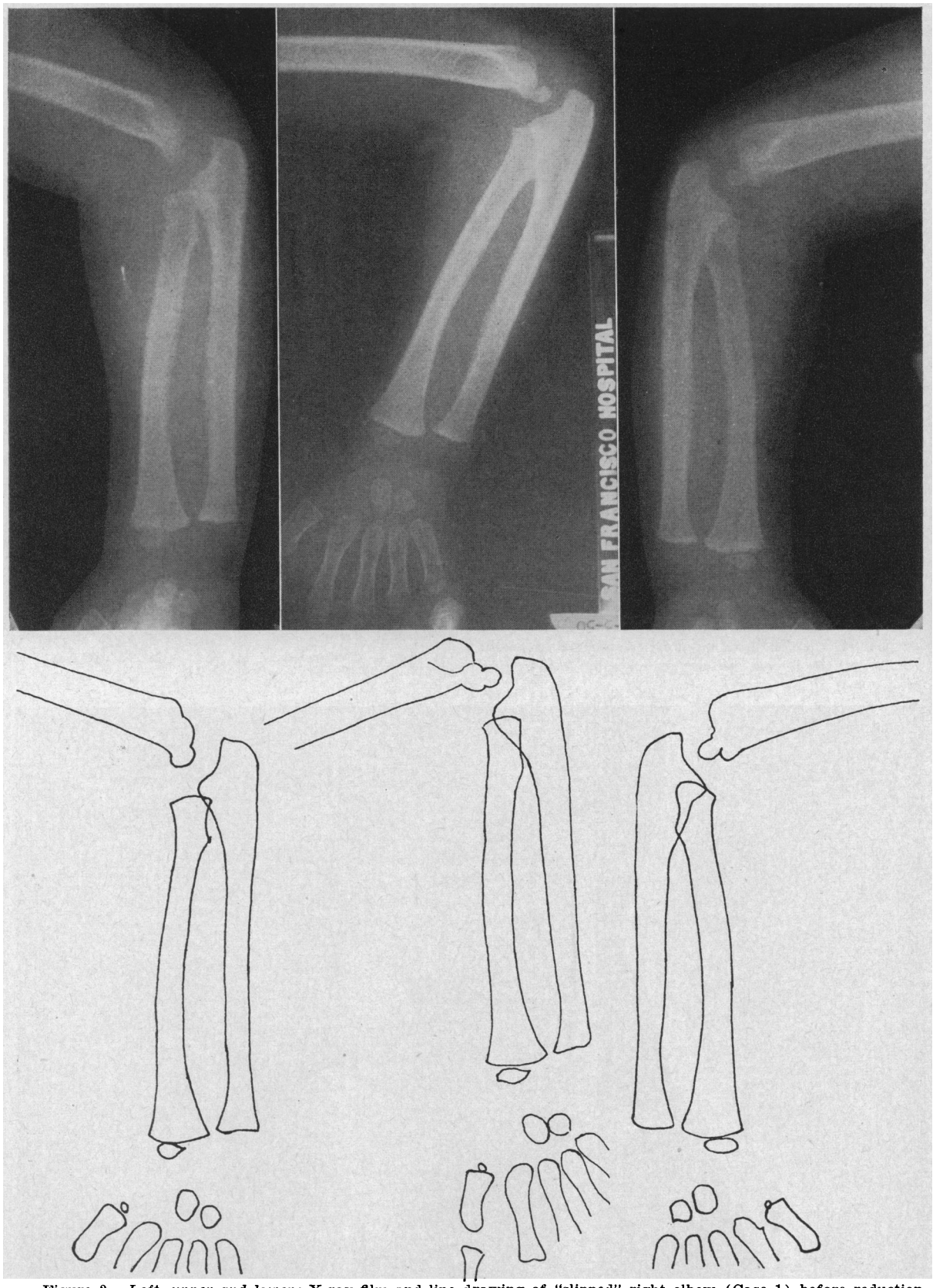


Figure 2.—*Left, upper and lower:* X-ray film and line drawing of "slipped" right elbow (Case 1) before reduction. *Center, upper and lower:* Same elbow after reduction. *Right, upper and lower:* Normal left elbow of same patient for purposes of comparison.

CASE REPORTS

CASE 1: The patient, a girl three years of age, was said to have hurt her right arm while playing with her father. She had been riding on her father's back, and her right arm was pulled around his neck to keep her from falling. When first observed the patient was supporting her right arm with her left hand, the right forearm being in flexion and held across the front of the body in pronation. All passive movements of the elbow were painless, with the exception of supination, which was resisted. The usual gentle flexion and supination gave immediate reduction, with an audible click and complete relief of disability. According to the history given by the mother, the patient had had three similar incidents at the age of two and another at the age of two and one-half, making five in all. X-ray films taken elsewhere during the last previous incident had been reported as normal. Comparison of preoperative and postoperative x-ray films (Figure 2) indicated the very slight degree of lateral displacement of the head of the radius on the ulna.

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CASE 2: A "lump" on the left elbow was noted in the course of a physical examination of a boy 13 years of age, but the origin of the condition was not recognized at that time. Two years later when the patient was recalled for specific examination of the deformity there was 20 degrees' loss of extension and 45 degrees' loss of supination in the joint, but no impairment of either flexion or pronation, and the patient made no complaint of pain. In x-ray films (Figure 3) it was noted that the prominence derived from the head of the radius and was due to dislocation rather than to overgrowth, inasmuch as the roentgenographs showed that right and left radii were approximately equal in length. The x-ray films in this case are quite similar to those presented by Blodgett[1] in a report of cases of so-called congenital luxation.

500 Grand Avenue.

REFERENCES

1. Blodgett, W. E.: Congenital luxation of the head of the radius, Am. J. Orthop. Surg., 3:253-270, Jan. 1906.

2. Cleary, E. W.: Personal communication.

3. Stimson, A.: Fractures and Dislocations, New York, Lea Brothers & Company, 1907.

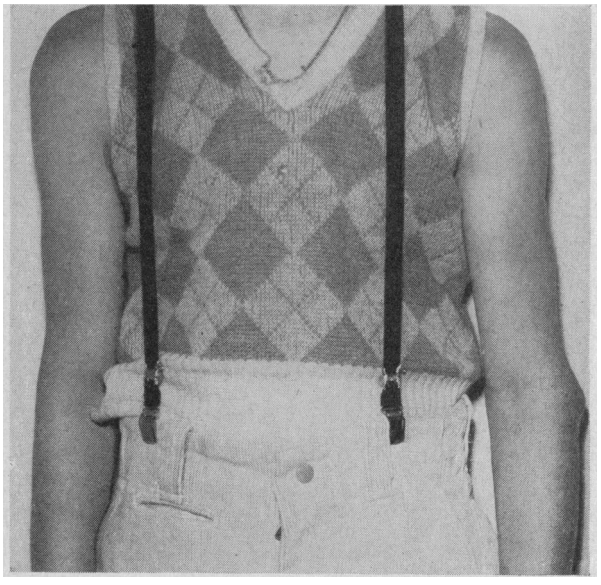

Figure 3.—Deformity of left elbow (Case 2), probably as sequel of unreduced "slipped elbow."

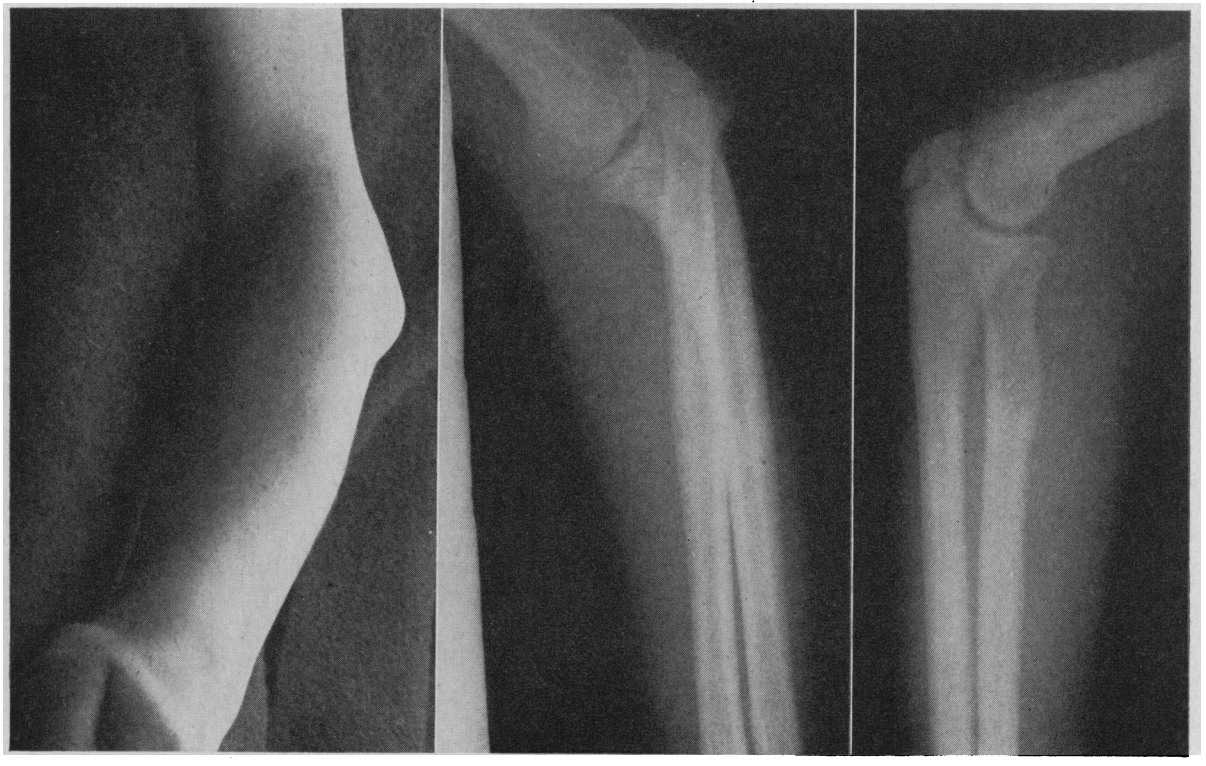

Figure 4.—*Left:* Deformity of elbow (Case 2). *Center:* X-ray film of deformed elbow. *Right:* X-ray film of normal right elbow, same patient.